

Table A. Management requirements to reduce or prevent adverse effects by Big Bar Project.

Potential Resource(s) Affected	Management Requirements Designed to Reduce or Prevent Adverse Effects	Responsible Person(s)
Heritage Resources	Heritage Resources will be designated on the ground prior to implementation of all project activities. Protect Heritage Resources that have been identified on the ground with flagging as well as those identified on maps provided by the District Archaeologist.	District Archaeologist, Layout/Contract Specialist, and Sale Administrator
Heritage Resources	Management of Heritage Resources: Protect all Heritage Resources with flagged control areas. Utilize directional felling methods as appropriate to protect heritage resources. Buffer zones may be designated to ensure added protection. Sale Administrator, Contract Inspector, and/or Archaeologist will walk all sites with purchaser, contractor, or force account staff prior to start of project activities.	District Archaeologist, Layout/Contract Specialist, and Sale Administrator
Heritage Resources	Management of Linear Heritage Resources: Directionally fell trees parallel to or away from linear Heritage Resources (trails, ditches, roads etc.); existing breaches will be used whenever possible; if necessary, new breaches will be designated by the District Archaeologist; and isolated trees inside of linear Heritage Resource features may be felled on a case-by-case basis and with on-the-ground approval of the District Archaeologist.	District Archaeologist, Layout/Contract Specialist, and Sale Administrator
Heritage Resources	<p>Guidelines 2.1(a) for approved Standard Protection Measures established in the 2018 Regional Programmatic Agreement Regarding Compliance with Section 106 of the National Historic Preservation Act.</p> <p>Linear sites (e.g., historic trails, roads, railroad grades, ditches) may be crossed or breached by equipment in areas where their features or characteristics clearly lack historic integrity (i.e., where those portions do not contribute to site eligibility or values).</p> <p>(1) Crossings are not to be made at the points of origin, intersection, or terminus of linear site features.</p> <p>(2) Crossings are to be made perpendicular to linear site features.</p> <p>(3) The number of crossings is to be minimized by project and amongst multiple projects in the same general location.</p> <p>(4) The remainder of the linear site is to be avoided, and traffic is to be clearly routed through designated crossings.</p>	District Archaeologist, layout/Contract Specialist, and Sale Administrator
Heritage Resources	Guidelines 2.1(b) for approved Standard Protection Measures established in the 2018 Regional Programmatic Agreement Regarding Compliance with Section 106 of the National Historic Preservation Act.	District Archaeologist, layout/Contract Specialist, and Sale Administrator

Potential Resource(s) Affected	Management Requirements Designed to Reduce or Prevent Adverse Effects	Responsible Person(s)
	<p>Accumulation of sufficient snow over archaeological deposits or historic features to prevent surface and subsurface impacts. Undertaking activities may be implemented over snow cover on historic properties under the following conditions:</p> <p>(1) The cover must have at least 12 inches depth of compacted snow or ice throughout the duration of undertaking activities on sites.</p> <p>(2) All concentrated work areas (e.g., landings, skid trails, turnarounds, and processing equipment sites) shall be located prior to snow accumulation and outside historic property boundaries.</p>	
Heritage Resources	<p>Guidelines 2.1(c) for approved Standard Protection Measures established in the 2018 Regional Programmatic Agreement Regarding Compliance with Section 106 of the National Historic Preservation Act.</p> <p>Placement of foreign, non-archaeological material (e.g., padding or filter cloth) within transportation corridors (e.g., designated roads or trails, campground loops, boat ramps, etc.) over archaeological deposits or historic features to prevent surface and subsurface impacts caused by vehicles or equipment. Such foreign material may be utilized on historic properties under the following conditions:</p> <p>(1) Engineering will design the foreign material depth to acceptable professional standards;</p> <p>(2) Engineering will design the foreign material use to assure that there will be no surface or subsurface impacts to archaeological deposits or historic features;</p> <p>(3) The foreign material must be easily distinguished from underlying archaeological deposits or historic features;</p> <p>(4) The remainder of the archaeological site or historic feature is to be avoided, and traffic is to be clearly routed across the foreign fill material;</p> <p>(5) The foreign material must be removable should research or other heritage need require access to the archaeological deposit or historic feature at a later date; and</p> <p>(6) Indian tribe or other public concerns about the use of the foreign material will be addressed prior to use.</p>	District Archaeologist, Layout/Contract Specialist, and Sale Administrator

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Heritage Resources	<p>Guidelines 2.2(a) for approved Standard Protection Measures established in the 2018 Regional Programmatic Agreement Regarding Compliance with Section 106 of the National Historic Preservation Act.</p> <p>Felling and removal of hazard, salvage, and other trees within historic properties under the following conditions:</p> <p>(1) Trees may be limbed or topped to prevent soil gouging during felling;</p> <p>(2) Felled trees may be removed using only the following techniques: hand bucking, including use of chain saws, and hand carrying, rubber tired loader, crane/self-loader, helicopter, or other non-disturbing, HPM-approved methods;</p> <p>(3) Equipment operators shall be briefed on the need to reduce ground disturbances (e.g., minimizing turns);</p> <p>(4) No skidding nor tracked equipment shall be allowed within historic property boundaries; and</p> <p>(5) Where monitoring is a condition of approval, its requirements or scheduling procedures should be included in the written approval.</p>	District Archaeologist, Layout/Contract Specialist, and Sale Administrator
Heritage Resources	<p>Guidelines 2.2(b) for approved Standard Protection Measures established in the 2018 Regional Programmatic Agreement Regarding Compliance with Section 106 of the National Historic Preservation Act.</p> <p>For fire, and hazardous fuels and vegetation management projects, HPM/DHPS , in conjunction with fuels, vegetation management, or fire specialists as necessary, shall develop treatment measures for <i>at risk</i> historic properties (as defined in SHPO approved Region 5 modules and agreements) designed to eliminate or reduce potential adverse effects to the extent practicable by utilizing methods that minimize surface disturbance, and/or by planning project activities in previously disturbed areas or areas lacking cultural features.</p> <p>(1) The following standard protection measures apply to fire, hazardous fuels, and vegetation management projects:</p> <p>(I) Mechanically treated (crushed/cut) brush or downed woody material may be removed from historic properties by hand, through the use of off-site equipment, or by rubber-tired equipment approved by</p>	District Archaeologist, Layout/Contract Specialist, and Sale Administrator

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	<p>HPMs or qualified Heritage Program staff. Ground disturbance shall be minimized to the extent practicable during such removals.</p> <p>(J) Woody material may be chipped within the boundaries of historic properties so long as the staging of chipping equipment on-site does not affect historic properties and staging areas are specifically approved by HPMs or qualified Heritage Program staff.</p> <p>(K) HPMs shall approve the use of tracked equipment to remove brush or woody material from within specifically identified areas of site boundaries under prescribed measures designed to prevent or minimize effects. Vegetative or other protective padding may be used in conjunction with HPM authorization of certain equipment types within site boundaries.</p>	
Heritage Resources	Logging Camps: Proposed logging camps and other staging areas need to be agreed upon with the District Archaeologist prior to use.	District Archaeologist, Layout/Contract Specialist, and Sale Administrator
Lands	Protect land survey signs and monuments, even if burned, or laying on the ground.	Layout/Contract Specialist, Fuels Specialist, Sale Administrator, and Public Service Officer
Lands	Notify private property owners within the Camp Fire area of initial logging schedule.	Layout/Contract Specialist, Fuels Specialist, Sale Administrator, and Public Service Officer
Minerals	Notify mining claimants within the Camp Fire Area of impending harvest schedule once it is known.	Minerals Officer and Sale Administrator
Rare Plants - Conservation	<p>BOTANY CONTROLLED AREAS (CAs) have been established for the protection of one species of rare plants.</p> <ul style="list-style-type: none"> NO HEAVY EQUIPMENT or other vehicles allowed on the ground within CAs (equipment reaching into a CA to retrieve logs, or pulling logs out of a CA, or similar, is ok); no burn piles (lop-and-scatter within CAs, remove as much slash as practical to burn piles outside of CAs); no herbicide use; no site prep, planting, or timber stand maintenance. 	Botanist, Project Implementation Teams, Contract Administrators
Rare Plants - Conservation	<p>BOTANY CONTROLLED AREAS will be shown on the project implementation maps, and be flagged on the ground by red-and-black-stripe and blue-and-black-stripe flagging always tied together.</p> <ul style="list-style-type: none"> Contact the District Botanist prior to project implementation to ensure that flagging is in place 	Botanist, Implementation Team, and Contract Administrator

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	and refreshed as necessary.	
Rare Plants - Conservation	No herbicide use is allowed within 50 ft of any rare plants regardless of whether the rare plants are included within a botany Controlled Area.	Botanist, Implementation Team, and Contract Administrator
Non-native Invasive Plants (NNIP) - Prevention	Ensure that all plant material and fill material used for erosion control and/or road maintenance is free of NNIP, including straw, mulch, gravel, and rock (<i>certified weed-free</i>).	Botanist, Implementation Team, and Contract Administrator
Non-native Invasive Plants (NNIP) - Prevention	Clean all off-road equipment entering the project area if it may be coming from areas infested with nonnative invasive plants (NNIP).	Botanist, Fuels Officer, Project Implementation Teams, Contract Administrators
Non-native Invasive Plants (NNIP) - Prevention	<p>To the greatest extent feasible keep all equipment, vehicles, and supplies out of areas of known NNIP infestations, including any NNIP infestations along access routes and new infestations that may be discovered during project implementation. NNIP infestations may sometimes be flagged with bright orange “noxious weed” flagging.</p> <ul style="list-style-type: none"> Any equipment, vehicles, and supplies that do come in contact with NNIP infestations (plants or the ground close to them) during project implementation should be thoroughly cleaned of dirt, mud, and plant debris before entering any un-infested project area. Hand cutting of broom plants and placement of burn piles on top of NNIP infestations is encouraged. New infestations should be mapped and reported to the District Botanist. 	Botanist, Fuels Officer, Project Implementation Teams, Contract Administrators
Non-native Invasive Plants (NNIP) - Prevention	Ensure that all plant material and fill material used for erosion control and/or road maintenance is free of NNIP, including straw, mulch, gravel, and rock (<i>certified weed-free</i>).	Botanist, Implementation Team, and Contract Administrator
Non-native Invasive Plants (NNIP) - Prevention	<p>Members of the project implementation teams (layout crew, contract administrator, etc.) should watch for and be able to recognize NNIP.</p> <ul style="list-style-type: none"> As time allows, pull some or all of NNIP encountered during project activities (avoiding Archaeology controlled areas). New infestations should be mapped and reported to the District Botanist, and flagged and avoided. 	Botanist, Project Implementation Teams, Contract Administrators
Non-native Invasive Plants (NNIP) - Prevention	<p>Monitor areas of project related ground disturbance (e.g. skid trails, temp roads, landings, trails, etc.) for NNIP for up to 10 years following implementation of each project activity.</p> <ul style="list-style-type: none"> As funding becomes available, new and old infestations of NNIP should be pulled or otherwise treated. New infestations should be mapped and reported to the District Botanist. 	Botanist and Implementation Team

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Recreation and Public Use	Protect all improvements including directional and informational signs, barriers, etc. If any barriers (including boulders) or improvements are damaged or removed to during activities, they must be replaced and re-installed in the same location and manner immediately following vegetation management operations.	Layout/Contract Specialist, Fuels Specialist and Recreation Specialist
Recreation and Public Use	Recreation areas (designated roads, trails, trailheads, staging areas, and dispersed camp sites) may be temporarily closed to provide for public safety during active tree removal operations, but would otherwise remain open unless specifically agreed to by the Recreation Specialist.	Layout/Contract Specialist, Fuels Specialist and Recreation Specialist
Recreation and Public Use	Skid trails shall be treated to prevent post-harvest use by any off-highway vehicle. This may be by slash scatter, water barring, or other method agreed to by the Recreation Specialist. The access point shall be closed in a manner that is effective to keep OHV use from occurring.	Layout/Contract Specialist, Fuels Specialist, Sale Administrator, and Recreation Specialist
Recreation and Public Use	When new landings are developed, locate them in coordination with Recreation Specialist. New landings shall be effectively closed and decommissioned.	Layout/Contract Specialist, Fuels Specialist, Sale Administrator, and Recreation Specialist
Recreation and Public Use	Barricade, with local and natural material, all skid trails that directly intersect a forest road or trail. This is to deter off-road and unapproved use of skid trails for motorized vehicles and new dispersed campsites.	Layout/Contract Specialist, Fuels Specialist, Sale Administrator, and Recreation Specialist
Scenery Resources	Roadside stumps that are visible within 50 feet of the Concow Road should be cut to within eight inches of the ground (or as low as possible considering obstacles and safety) and the cut should slope away from travelway.	Contract Specialist, Sale Administrator, and Fuels Implementation Team
Silviculture	Lopping and Scattering: Slash shall be lopped and scattered away from the bole of residual leave trees so that it lies outside of the drip line.	Contract Specialist and Sale Administrator
Silviculture	Piling and burning: Piles shall be placed away from residual leave trees to avoid being scorched during burning. Piles cannot be located on or against stumps and logs.	Contract Specialist and Sale Administrator
Silviculture	Leaner's/Hang-ups - No created slash shall be left suspended by, or lean against, a leave tree; whether it is dead or alive.	Contract Specialist and Sale Administrator
Silviculture	Protection of specially-identified trees (i.e., location, survey marker, or bearing trees; proven rust resistant sugar pine trees; or genetically superior tree of any species). They are usually identified with various types of metal tags.	Contract Specialist and Sale Administrator
Fire and Fuels	Activity Generated Slash adjacent to FS roads. Pile all activity generated slash 100' depth of project area, and covered with waterproof covering for burning during	Contract Specialist, Sale Administrator, and Fuels Implementation Team

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	winter months. Piling and Burning Landings: Landings created for optimal winter weather burning. Waterproof covering on multiple locations of pile. Landing Temp Roads: Landings created for burning need to have roads accessible for fire engine access during ignition and monitoring phases. Landing Placement: Landing can scorch and burn live trees 50-100 feet in distance. Landing Fire Lines: 6-10 foot fire line created around each landing.	
Transportation System, Road Maintenance and Safety	Protect all improvements along roadways including road surface, signs, ditches, and drainage structures.	Maintenance Engineer, Contract Specialist, Sale Administrator
Transportation System, Road Maintenance and Safety	Maintain haul roads before, during, and after use. Place emphasis on post haul maintenance of road surface, and the surface drainage crossings to reduce erosion potential. Clean all activity debris from ditches and culvert inlets. Use Timber Sale contract road maintenance specifications T-802 Ditch Cleaning, T-803 Surface Blading, T-805 Drainage Structures, and T-809 Waterbars (or something comparable for service or stewardship contracts).	Maintenance Engineer, Contract Specialist, Sale Administrator and Fuels Implementation Team
Watershed and Soils Resources	See tables below.	Planning Forester, Prep Forester, Sale Administrator, and Hydrologist

Stream Type	Equipment Exclusion Zone (EEZ) for Mechanical Thinning via Salvage, Roadside Hazard Tree Removal, and Grapple Pile		Mastication	Underburn ¹	Hand Cut ²	Minimum Distance to Burn Piles
	Slope <35%	Slope >35%				
Perennial streams	100 feet	Excluded	50 feet	150 feet	No buffer	25 feet
Intermittent streams	100 feet	Excluded	50 feet	150 feet	No buffer	25 feet
Ephemeral streams	25 feet	Excluded	25 feet	150 feet	No buffer	25 feet
Special Aquatic Features (Reservoirs, wetlands, fens, and springs)	50 feet	Excluded	50 feet	150 feet	Perimeter	25 feet
Riparian Features: dry meadows, seasonal wetlands	0 to 25 ³ feet	Excluded	25 feet	150 feet	Perimeter	25 feet

1. Prescribed burning would be allowed within RCAs, but there would be no ignitions in riparian vegetation. Fire may back through this zone.

2. May hand cut within RCA feature but don’t cut riparian vegetation. Don’t cut vegetation that provides stream bank stabilization. Adhere to the minimum distance for burn piles. No hand cutting within special aquatic features

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and riparian features unless marked by hydrologist and/or biologist.						
3. Meadows may have no buffer to a 25 ft. buffer depending on the individual meadow. Buffers may vary due to the condition of the meadow (i.e. meadow is encroached with trees).						
Stream and Aquatic Features Buffer Widths for Herbicide Application. Buffers apply for invasive weed treatment and reforestation treatments.						
Herbicide Active Ingredient	Perennial or intermittent streams that have fish always or seasonally present.		Perennial or intermittent streams that don't have fish but are habitat for nonfish aquatic species.		Ephemeral streams and meadows.	
	Percent Slope					
	<30	30-50*	<30	30-50*	<30	30-50*
Aminocyclopyrachlor	75 ft.	100 ft.	50 ft.	75 ft.	25 ft.	50 ft.
Aminopyralid	75 ft.	100 ft.	50 ft.	75 ft.	25 ft.	50 ft.
Chlorsulfuron	75 ft.	100 ft.	50 ft.	75 ft.	25 ft.	50 ft.
Clopyralid	75 ft.	100 ft.	50 ft.	75 ft.	25 ft.	50 ft.
Fluazifop-P-butyl	75 ft.	100 ft.	50 ft.	75 ft.	25 ft.	50 ft.
Glyphosate	75 ft.	100 ft.	50 ft.	75 ft.	25 ft.	50 ft.
Imazapyr	75 ft.	100 ft.	50 ft.	75 ft.	25 ft.	50 ft.
Triclopyr-TEA	75 ft.	100 ft.	50 ft.	75 ft.	25 ft.	50 ft.
Triclopyr-BEE	75 ft.	100 ft.	50 ft.	75 ft.	25 ft.	50 ft.
Buffer distances are measured from the water's edge.						
Roadside ditches will be treated the same as the water body type they resemble.						
*Where management activities are planned on a burned area with slopes greater than 30%, a minimum of 50% average effective groundcover (see Attachment C for guidance) is required to be documented prior to pesticide application.						
Herbicide Application Design Features						
Design Feature	Soil and Water Design Standards		Purpose of Design Standard		Source of Design Standard	
DF-1	Areas with bare soil created by the treatment of noxious weeds would be evaluated for rehabilitation (i.e. reseedling, mulching, etc.)		To ensure that the treatment of noxious weeds is not creating open areas or bare areas for spread of noxious weeds and to protect water quality and riparian habitat.		BMP 5.4: Revegetation of Surface-disturbed Areas (R5-FSHB 2509.22)	
DF-2	Areas outside of ephemeral stream: If treatment reduces soil cover to less than 50% for a contiguous are of >0.25 acres, then mulching and/or revegetation may be required to minimize erosion and		To ensure that the treatment of noxious weeds is not creating open areas or bare areas for spread of noxious		BMP 5.4: Revegetation of Surface-disturbed Areas (R5-FSHB 2509.22)	

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	<p>reestablish native vegetation. Only native plant species will be used in revegetation. All mulch and seed material will be certified weed-free.</p> <p>Areas within 50 feet of ephemeral stream: If treatment reduces soil cover to less than 70% for a contiguous area of >0.1 acres, then mulching and/or revegetation may be required to minimize erosion and reestablish native vegetation. Only native plant species will be used in revegetation. All mulch and seed material will be certified weed-free.</p>	weeds and to protect water quality and riparian habitat.	
DF-3	Herbicide mixing will not occur within 150 feet of the ephemeral stream and inside ditch. The cleaning and disposal of herbicide containers will be done in accordance with Federal, State, and local laws, regulations, and directives.	To reduce risk of contamination of water by accidental spill.	<p>BMP 5.10: Pesticide Soil Contingency Planning (R5-FSHB 2509.22)</p> <p>BMP 5.11: Cleaning and Disposal of Pesticide Containers and Equipment (R5-FSHB 2509.22)</p> <p>National BMP Chem-5: Chemical Handling and Disposal (FS-990a)</p>
DF-4	When applying herbicides with a backpack sprayer all directed spray will be done in a downward direction in accordance to the herbicide's label. This will minimize herbicide drift and confine the herbicide to the drop zone of the individual weed plant being treated.	To control drift within the entire project area especially within sensitive areas and near water.	<p>BMP 5.12: Streamside Wet area Protection during Pesticide Spraying (R5-FSHB 2509.22)</p> <p>BMP 5.13: Controlling Pesticide Drift During Spray Application (R5-FSHB 2509.22)</p> <p>National BMP Chem-1: Chemical Use Planning (FS-990a)</p>
DF-5	All herbicide application will follow EPA approved label directions in regards to control of drift of herbicides during spraying. These directions have specific wind speeds and air temperatures for application of each herbicide. Applicators will utilize droplet size and spray pressure to insure droplets do not travel outside of the drip line target plant. A colorant would be added to the herbicide mixture prior to spraying. Spray cards may be used to aid in detecting herbicide drift.	To control drift of herbicides onto unintended targets and to minimize risk of surface water contamination.	<p>BMP 5.8: Pesticide Application According to Label Directions and Applicable Legal Requirements (FSHB 2509.22)</p> <p>BMP 5.9: Pesticide Application Monitoring and Evaluation (R5-FSHB 2509.22)</p> <p>BMP 5.13: Controlling Pesticide Drift during Spray Application (R5-FSHB 2509.22)</p> <p>National BMP Chem-2: Chemical Use Planning (FS-990a)</p>
DF-6	POEA surfactants will not be used within	To protect aquatic	BMP 5.12: Streamside

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	150 feet of live waters.	organisms.	Wet area Protection during Pesticide Spraying (R5-FSHB 2509.22)
DF-7	Roadside ditches will be treated the same as the water body type they resemble.	To project water quality and meet SNFPA Riparian Management Objectives. Also to ensure that TECS and Special Interest plants are protected.	BMP 5.12: Streamside Wet area Protection during Pesticide Spraying (R5-FSHB 2509.22)
DF-8	Application of Aminocyclopyrachlor, and Imazapyr will be limited to late spring and early summer. No application of these chemicals after that timeframe.	To project water quality.	National BMP Chem-1: Chemical Use Planning (FS-990a)
DF-9	Application Chlorsulfuron and Clopyralid will not be allowed in the fall.	To protect water quality.	National BMP Chem-1: Chemical Use Planning (FS-990a)
Watershed, Soils and Aquatic Resources	<p>Hazard trees and salvage trees within the equipment exclusion zone can be felled. Fell them away from the channel and other aquatic features to minimize disturbance of riparian vegetation. If feasible try to fell trees at a slight angle and not perpendicular to the stream.</p> <p>Felled trees within the RCA may be removed by end-lining. End-lining is not permitted through riparian vegetation. Grooves and bare soil created by end-lining will be mitigated with hand-built water bars and/or slash placement.</p> <p>Removal of trees across a perennial, intermittent or ephemeral stream will require full suspension across the entire channel. If full suspension cannot be obtained then the portion of the log that cannot be suspended will be left in the equipment exclusion zone.</p>		Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Watershed, Soils, and Aquatic Resources	<p>If effective soil cover is below the desired level of 50 percent soil cover along streams then leave slash material to increase soil cover. When cutting trees lop and scatter broken tops and limbs within 1 tree length of any stream. If feasible try to fell trees at a slight angle and not perpendicular to the stream.</p> <p>Effective soil cover could include organic surface materials (> ½ inches thick), woody material in contact with the soil (> ¼ inches thick in diameter), living vegetation, and rock fragments (> ¾ inches thick).</p>		Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Watershed, Soils, and Aquatic Resources	<p>Limit ground-based equipment to slopes less than 35% within all RCAs.</p> <p>To reduce ground disturbance created by equipment within RCAs, vary the routes the equipment uses and</p>		Planning Forester, Prep Forester, Sale Administrator, and Hydrologist

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	minimize turning of equipment.	
Watershed, Soils, and Aquatic Resources	Within RCAs having slopes less than 25%, and outside of the equipment exclusion zone, rubber-tired skidders may enter to retrieve logs but are limited to 1-2 passes over the same piece of ground.	Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Watershed, Soils, and Aquatic Resources	No new landings or roads will be located within RCAs. Consult with a hydrologist before using an existing skid trail, landing, or road located within an RCA.	Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Watershed, Soils, and Aquatic Resources	Mechanical site preparation for reforestation may occur within RCAs (on slopes less than 35%), outside of the equipment exclusion zone, when such operations do not result in detrimental soil compaction, meet soil moisture requirements, and maintain minimum effective soil cover (ESC) of 50% when feasible.	Planning Forester, Prep Forester, Sale Administrator, Hydrologist, Soil Scientist
Watershed, Soils, and Aquatic Resources	Designated skid trails crossing on ephemeral stream channels may be approved for access to otherwise inaccessible areas, but only upon consultation with a hydrologist.	Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Watershed, Soils, and Aquatic Resources	Place rock on roads at stream crossings and segments within identified RCAs to reduce the impact of sediment delivery to associated stream courses. Place rock, slash, or certified NNIP free mulch at the outlets of rolling dips and/or waterbars to dissipate water where identified by road engineer and soil scientist, and/or hydrologist.	Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Watershed, Soils, and Aquatic Resources	Water Source Use: Water sources shall be approved prior to use.	Planning Forester, Prep Forester, Sale Administrator, Road Maintenance Engineer, and Hydrologist
Watershed, Soils, and Aquatic Resources	<p>Check with the hydrologist on the latest water drafting streamflow criteria.</p> <p>Emergency Exemptions for Water Drafting Streamflow Criteria (February 28, 2014).</p> <p>For fish-bearing streams— The water drafting rate should not exceed 350 gallons per minute for streamflow greater than or equal to 4.0 cubic feet per second (cfs); Below 4.0 cfs, drafting rates should not exceed 20% of surface flows; Water drafting should cease when bypass surface flows drop below 1.5 cfs.</p> <p>For non-fish-bearing streams— The water drafting rate should not exceed 350 gallons per minute for streamflow greater than or equal to 2.0 cfs; Drafting rates should not exceed 50% of surface flows; Water drafting should cease when bypass surfaced flows drop below 10 gallons per minute.</p>	Sale Administrator and Hydrologist

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Watershed, Soils, and Aquatic Resources	Water Source Use: Each load of water drafted shall be documented in terms of gallons per project per truck per day and a written report provided to the Public Services Officer every two weeks.	Planning Forester, Prep Forester, Sale Administrator, Road Maintenance Engineer, Public Services Officer
Watershed, Soils, and Aquatic Resources	Water Source Use: Armor road approaches as necessary from the end of the approach nearest a stream for a minimum of 50 feet, or to the nearest drainage structure.	Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Watershed, Soils, and Aquatic Resources	Water Source Use: Where overflow runoff from water trucks or storage tanks may enter the stream, effective erosion control devices shall be installed. Sites should have a bump log and gravel to reduce erosion from over drafting.	Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Watershed, Soils, and Aquatic Resources	Water Source Use: All water-drafting vehicles shall be checked routinely and shall be repaired as necessary to prevent leaks of petroleum products from entering RCAs.	Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Watershed, Soils, and Aquatic Resources	Water Source Use: Water-drafting vehicles shall contain petroleum spill kits. Dispose of absorbent pads according to the Hazardous Response Plan.	Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Watershed, Soils, and Aquatic Resources	<p>Water Source Use: Survey all proposed drafting locations for sensitive and listed amphibians and receive approval from a biologist prior to use. Use drafting devices with 2-mm or less screening and place hose intake into bucket in the deepest part of the pool. Use a low velocity water pump and do not pump ponds to low levels beyond which they cannot recover quickly (approximately one hour).</p> <p>If a sensitive or listed amphibian is sighted within the project area, cease operations in the sighting area, and inform a Forest Service aquatic biologist of the sighting immediately.</p>	Planning Forester, Prep Forester, Sale Administrator, Aquatic Biologist and Hydrologist
Watershed and Soils Resources	<p>Limit tractor skidding to less than 35 percent slopes unless a watershed specialist evaluates operations on the steeper slopes. Tractor skidding may occur on slopes greater than 35 percent only in short pitches less than 200 feet in distance. Where skidding occurs on slopes greater than 15 percent and effective soil cover off of skid trails is less than 50 percent, scatter slash on skid trails to achieve at least 50 percent effective soil cover.</p> <p>Effective soil cover could include organic surface materials (> ½ inches thick), woody material in contact with the soil (> ¼ inches thick in diameter), living vegetation, and rock fragments (> ¾ inches thick). Use of weed free straw, wood chips, or mulch may be used where on-site material is insufficient.</p>	Planning Forester, Prep Forester, Sale Administrator, Soil Scientist, and Hydrologist

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Potential Resource(s) Affected	Management Requirements Designed to Reduce or Prevent Adverse Effects	Responsible Person(s)
Watershed and Soils Resources	When possible, use existing skid trails and landings except where this could cause unacceptable resource damage. Limit new and existing skid trails, temp roads, and landings to less than 15 percent of the unit area. Space skid trails at least 75 feet apart.	Planning Forester, Prep Forester, Sale Administrator, Soil Scientist, and Hydrologist
Watershed and Soils Resources	Where end-lining has gouged out soil forming a path for concentrating runoff, use hand tools to install cross drains or rake berm over gouged out area. Use cross drain spacing guidelines listed below. Pull berms back on skid trails where ground conditions are appropriate.	Sale Administrator, Soil Scientist, Hydrologist,
Watershed and Soils Resources	Allow mechanical operations only when soil moisture conditions are such that compaction, gullyng, and/or rutting will be minimal. Conduct ground based harvest operations when soil is dry; that is, in the spring when soil moisture in the upper 8 inches is not sufficient to allow a soil sample to be squeezed and hold its shape, or will crumble when the hand is tapped. In the summer and early fall after storm event(s) when soil moisture between 2-8 inches in depth is not sufficient to allow a soil sample to be squeezed and hold its shape, or will crumble when the hand is tapped. Off of designated skid trails, limit all equipment passes over the same piece of ground to reduce the potential for adverse soil compaction.	Sale Administrator, COR, Soil Scientist, and Hydrologist
Watershed and Soils Resources	<p>Temporary roads: Following temporary road use, remove culverts, eliminate ditches, out-slope roadbed, remove ruts and berms, effectively block the road to normal vehicular traffic where feasible under existing terrain conditions, and build cross ditches and water bars.</p> <p>Subsoil all temporary roads and add effective soil cover to bare soil.</p> <p>Add 100 feet of on effective soil cover on both sides of a perennial stream and 75 feet on seasonally flowing streams.</p> <p>Effective soil cover could include organic surface materials (> ½ inches thick), woody material in contact with the soil (> ¼ inches thick in diameter), living vegetation, and rock fragments (> ¾ inches thick). Use of weed free straw, wood chips, or mulch may be used where on-site material is insufficient.</p>	Planning Forester, Prep Forester, Sale Administrator, Soil Scientist, and Hydrologist
Watershed and Soils Resources	Subsoil soil units SY04, SY07 and SY08. The last 200 feet of existing and new skid trials leading to the landings will be subsoiled. Any new temporary roads the entire length will be subsoiled as well. All existing and new landings will be subsoiled too.	Sale Administrator, Soil Scientist, Hydrologist,
Watershed and Soils Resources	Log Landings: re-use log landings to the extent feasible. Limit new landings to ½ acre in size.	Planning Forester, Prep Forester, Sale Administrator, Soil Scientist, and

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Potential Resource(s) Affected	Management Requirements Designed to Reduce or Prevent Adverse Effects	Responsible Person(s)
		Hydrologist
Watershed and Soils Resources	<p>Recommended spacing for cross drainage spacing on skid trail and temporary roads:</p> <p>Slope Gradient Cross Drain Spacing</p> <p>1-6% 250'</p> <p>7-9% 150'</p> <p>10-14% 125'</p> <p>15-20% 60'</p> <p>21-40% 30'</p>	Sale Administrator, Soil Scientist, Hydrologist,
Watershed and Soils Resources	To reduce the potential for adverse cumulative watershed effects, implement state certified Best Management Practices (BMPs). Site specific BMPs applicable to this project (located in project record file) include BMP 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.8, 1.9, 1.10, 1.11, 1.12, 1.13, 1.14, 1.15, 1.16, 1.17, 1.19, 1.20, 1.21, 2.2, 2.3, 2.4, 2.5, 2.6, 2.8, 2.11, 5.1, 5.2, 5.4, and 5.6.	Planning Forester, Prep Forester, Sale Administrator, and Hydrologist
Amphibian	Foothill Yellow-legged frogs- Limiting Operating Period in the stream buffers from October 15 through May 1 or until the end of the rainy season. Work may subsequently resume when rain stops and after a dry period of 48 hours or and no further precipitation is forecast during the time to complete the project.	Wildlife Biologist, Layout/Contract Specialist, Sale Administrator, and Fuels Implementation Team
Stream & Natural Springs	<p>Perennial or Intermittent Streams 100- foot buffer.</p> <p>Ephemeral 25- foot buffer.</p> <p>Natural spring 50-foot buffer.</p> <ul style="list-style-type: none"> Heavy equipment is restricted from use within a 100-foot from perennial or intermittent streams and 25-feet from ephemeral. Maintenance activities (e.g., hand-cut and pile < 10" trees, prescribed burns) are allowed within a 100-foot stream buffer (perennial or intermittent) and 25-feet ephemeral creeks. There are 3 natural springs a 50-foot buffer and no activities allowed. 	Wildlife Biologist, Layout/Contract Specialist, Sale Administrator, and Fuels Implementation Team
Wildlife	<p>California spotted owl PAC BUT0092: Maintain a limited operating period (LOP) activates shall not occur between March 1 through August 15 within a ¼ mile of a nesting pair. In units: 4, 4a, 5, 5a or depending where the nest is found located. LOP may not apply to all road activities as long as the nest is reasonably situated out of sight of the road and would not cause the pair to abandon the nest. Possible solutions include a biologist on site or rearrange the order of salvage away from the area.</p> <p>Prior to implementing activities within or adjacent to the PAC, either conduct surveys or adhere to the LOP.</p>	Wildlife Biologist, Layout/Contract Specialist, Sale Administrator, and Fuels Implementation Team

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Potential Resource(s) Affected	Management Requirements Designed to Reduce or Prevent Adverse Effects	Responsible Person(s)
California Spotted Owl – PAC prescriptions.	<ul style="list-style-type: none"> • Leave a 50- 75 buffer of trees affected by the wildfire that board the PAC. • In the PAC where the acres sustained a low intensity burn 5a (74 acres). Remove wildfire caused dead trees but leave green trees and snags. • Avoid creating a landing in the PAC particularly in the low burn acres. • Retain the upper canopy greater than 65% in the low intensity burn acres 5a (74 acres). • Avoid leaving a slash pile in the PAC. 	Wildlife Biologist, Layout/Contract Specialist, Sale Administrator, and Fuels Implementation Team
Wildlife	Incidental detections of federally-listed and sensitive species prior to or during project implementation will be reported to the District Wildlife Biologist for protection in accordance with management direction for the Tahoe National Forest.	Wildlife Biologist, Contract Specialist, Sale Administrator, and Fuels Implementation Team

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